

GMR45

USER MANUAL

VERSION 1.1.3
11/27/2023

FCC NOTICE

The GMR45 operates on GMRS (General Mobile Radio Service) frequencies, which require a Federal Communications Commission (FCC) license. You must be licensed prior to operating on channels 1-7, 15-22 or RP15-22 which comprise the GMRS channels of the GMR45. Serious penalties may result from unlicensed use of GMRS channels, in violation of FCC rules, as stipulated in the Communications Act's Sections 501 and 502 (amended). You will be issued a call sign by the FCC that should be used for station identification when operating your radio on GMRS channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of your transmission time

To obtain a license or ask questions about the license application, contact the FCC at 1-888-CALL-FCC or go to the FCC's website: <http://www.fcc.gov> and request Form 605.



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USER SAFETY INFORMATION

- Do not attempt to configure your radio while driving.
- This radio is designed for a 13.8V DC power supply. Do not use a 24V battery to power on the radio.
- Do not place the transceiver in excessively dusty, humid or wet areas, nor unstable surfaces.
- Please keep it away from interference devices (Such as TVs, generators, etc.)
- Do not expose the radio to long periods of direct sunlight or place it close to heating appliances.
- If an abnormal odor or smoke is detected coming from the radio, turn off the power immediately and contact your dealer.
- Do not transmit with high power for extended periods or the radio may overheat.

PACKAGE INCLUDES

- Radio unit x 1
- Hand Mic x 1
- Mobile mounting bracket x 1
- DC power cable with fuse holder x 1
- Screw packs x 1
- Protection fuses x 1

MAIN FEATURES

Go Further with our industry leading 45-watt GMR45 mobile radio. More wattage equals more power and range, giving you the ability to transmit long-distances when it matters. Easily connect to intercom, headset, or any 5-pin accessory with the built-in Rugged Ready pigtail cable! Loaded with channels and features, the GMR45 is ideal for installation into your vehicle or setup at base camp.

FEATURES:

- 45 Watt Radio
- 8 Repeater Channels
- 15 GMRS Channels (1-7 & 15-22)
- Easily connect to intercom, headset, or any 5-pin accessory with the built-in Rugged Ready pigtail cable!
- Battery Voltage Display
- Adjustable Squelch
- KeyPad Lock
- External Speaker Port
- Clear Backlit Display
- Channel Scan Mode
- Dual-Tone Multi-Frequency (DTMF)*

*Enabled via software available from RT Systems.

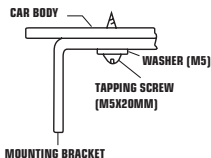
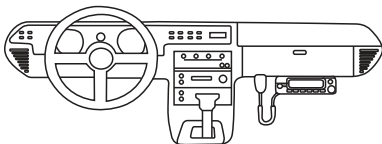
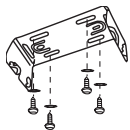
INITIAL INSTALLATION

MOBILE INSTALLATION

Mobile Installation: To install the radio select a safe and convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Consider installing the unit at an appropriate position so that knees or legs will not strike it during sudden braking of your vehicle. Try to pick a well ventilated location that is shielded from direct sunlight.

Caution: Extreme care should be exercised when drilling into dash to avoid damage to under dash components.

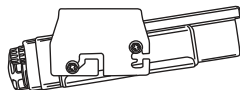
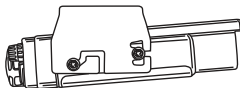
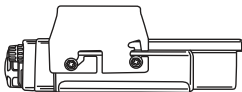
1. Install the mounting bracket in the vehicle using the supplied self-tapping screws and flat washers.



INITIAL INSTALLATION

MOBILE INSTALLATION (CONT.)

2. Position the radio, then insert and tighten the supplied hex/Phillips screws.
 - Determine the appropriate angle of the radio using the 3 screw hole positions on the side of the mounting bracket.
 - Double check that all screws are tightened to prevent vehicle vibration from loosening the bracket or radio.



INITIAL INSTALLATION

DC POWER CABLE CONNECTION

The vehicle battery must have a nominal rating of 12V. Never connect the radio to a 24V battery. Be sure to use a 12V vehicle battery that has sufficient current capacity. If the current to the radio is insufficient the display may darken during transmission or transmitting output power may drop dramatically.

1. Route the DC power cable supplied with the radio directly to the vehicle's battery terminals using the shortest path from the radio. We suggest you do not use the cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop. The entire length of the cable must be dressed so it is isolated from heat, moisture and the engine secondary (high voltage) ignition system/cables.
2. Confirm the correct polarity of the connections, then attach the power cable to the battery terminals: Red connects to the positive (+) terminal and black connects to the negative (-) terminal.

INITIAL INSTALLATION

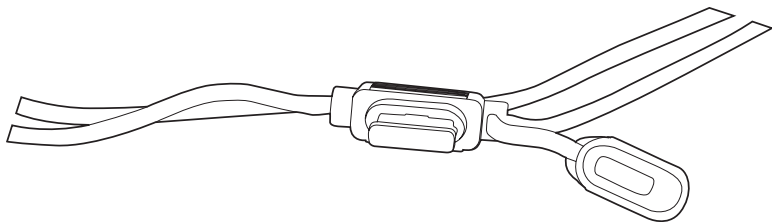
DC POWER CABLE CONNECTION (CONT.)

3. Connect the DC power cable to the radio's power supply connector. Press the connectors firmly together until the locking tab clicks.

INITIAL INSTALLATION

REPLACING FUSES

If the fuse blows, determine the cause then correct the problem. After the problem is resolved replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact Rugged Radios for assistance. Only use fuses of the specified type and rating otherwise the radio could be damaged.



Fuse Location	Fuse Current Rating
Transceiver	15A
Supplied accessory DC power cable	20A

Note: If you use the radio for a long period when the vehicle battery is not fully charged or when the engine is OFF, the battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the radio in these conditions.

ANTENNA CONNECTION

Before operating, install an efficient well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The radio can give excellent results if the antenna system and its installation are given careful attention. Use a 50Ω impedance antenna and low-loss coaxial feed-line that has a characteristic impedance of 50Ω , to match the radio input impedance. Coupling the antenna to the radio via feed-lines having a impedance other than 50Ω reduces the efficiency of the antenna system and can cause interference to nearby broadcast TV receivers, radio receivers and other electronic equipment.

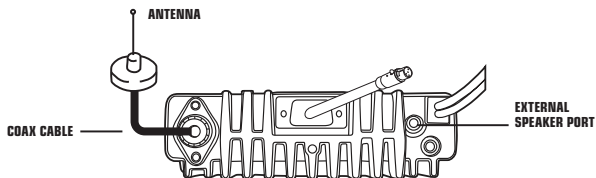
Note: Transmitting without first connecting an antenna or other matched load may damage the radio.

Always connect the antenna to the radio before transmitting. All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock and radio damage.

INSTALLING THE ANTENNA

For the best range, only the Rugged Radios GMRS POINT5 antenna should be used. Specific installation requirements vary between vehicles. Use the following guidelines to install the antenna. Where you locate your antenna does make a difference!

1. Avoid metal surfaces covered by fiberglass or vinyl that may affect radio range.
2. Mount the antenna as high on the vehicle as possible. The higher the better.
3. If possible, mount the antenna in the center of whatever surface you choose.
4. Be sure the mounting location is clean and dry before installing the antenna.
5. Route the antenna cable through an accessible entry point, such as a door or trunk opening.
6. When routing the antenna cable inside the vehicle, keep the cable away from noise sources, such as the ignition system, gauges, etc.
7. Exercise care to prevent cable damage. Make use of existing gaskets, grommets and weather stripping to protect the cable along its route.



Important: Mount antenna up high and do not coil-up excess cable.

ACCESSORY CONNECTIONS

5-PIN CABLE

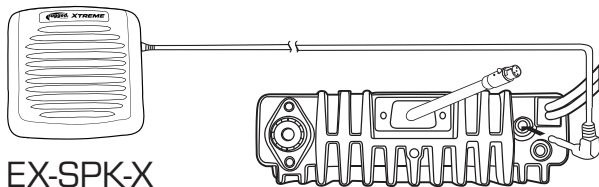
With its 5-pin interface cable, the GMR45 is Rugged Ready and can be easily connected to headsets, intercoms, and other communication equipment.



ACCESSORY CONNECTIONS

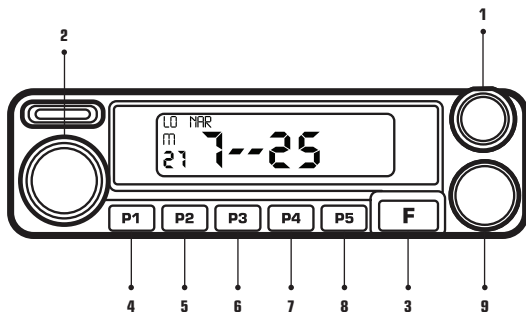
EXTERNAL SPEAKERS

If you plan to use an external speaker, choose a speaker with an impedance of 8Ω . The external speaker jack accepts a 3.5mm mono (2-conductor) plug. When an external speaker is connected, the radio's internal speaker is automatically disabled.



GETTING ACQUAINTED

FRONT PANEL OPERATION

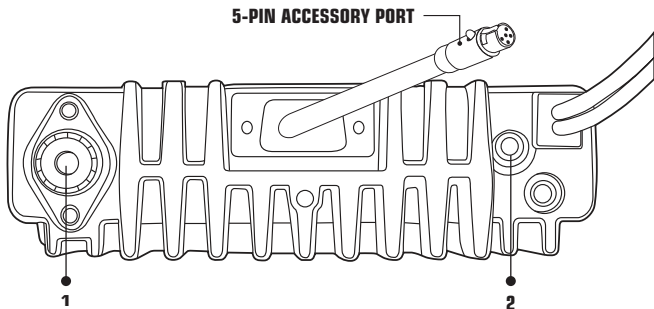


NO.	Key	Function
1	VOLUME	Powers radio on/off and adjusts volume levels.
2	Main Dial	Change channels.
3	FUNCTION	Press [F] to toggle the function button.
4	P1/SCAN	Long press [P1] to scan through radio channels.
5	P2/MONITOR	Press [P2] to adjust radio to "0" squelch mode allowing you to receive weaker transmissions.
6	P3/SQL	Press [P3] to adjust squelch.
7	P4/BATTERY	Press [P4] to display the amount of volts the unit is receiving.
8	P5/LOCK	Long press [P5] to lock and unlock radio.
9	Mic Port	Microphone connection port.

GETTING ACQUAINTED

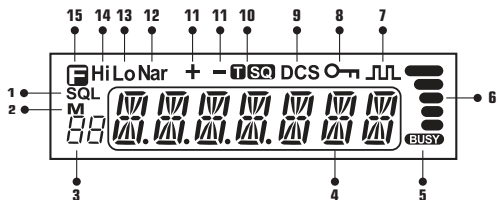
REAR PANEL OPERATION

No.	Port	Function
1	Antenna Connector	Connection for 50Ω antenna.
2	Ext. Speaker Terminal	Terminal for optional external speaker..



GETTING ACQUAINTED

DISPLAY

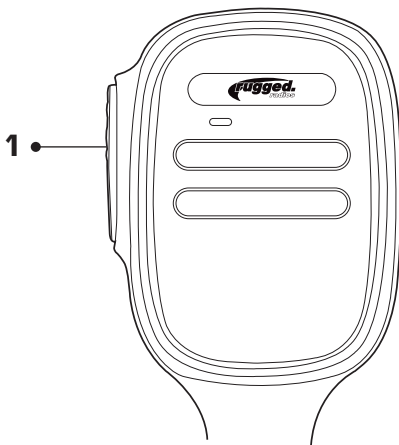


No.	Key	Function
1	SQL	Squelch level.
2	M	In channel mode.
3		Indicates the channel number in channel mode.
4		Indicates the frequency or memory name.
5	BUSY	Signal is being received or monitor.
6		Signal strength of receiving and transmitting.
7		Compander .
8		Keypad lock .
9	DCS	Set DCS function.
10	CTCSS	Set CTCSS function.
11	+ -	Offset frequency direction.
12	Nar	Narrow band.
13	LO	Low power.
14	Hi	High Power
15		Pressing key.

GETTING ACQUAINTED

MICROPHONE

No.	Icon	Function
1	PTT	Hold microphone approximately 4 inches from mouth, press the key [#1], and speak into microphone.



GETTING ACQUAINTED

ADDITIONAL FEATURES

Feature	Function
Channel Scan	In channel mode, this function is designed to monitor signal in every channel. <ol style="list-style-type: none">1. In channel mode, long-press [P1] to enter into channel scan2. Turn selector knob key to change scan direction.3. Press any key except [F] key to exit.
Back Light Color	<ol style="list-style-type: none">1. Short press [F] then [P4] to enter the color selection menu.2. Turn selector knob to select the desired light color; total 3 color for choice.3. Press [P5] key to confirm and exit.
Compander*	Compander function will decrease the background noise and enhance audio clarity, especially in long range communication.

*Enabled via software available from RT Systems.

TROUBLESHOOTING

Problem	Possible Cause and Potential Solutions
(a) Power is on, nothing appears on Display.	+ and - polarities of power connection are reversed. Connect red lead to plus terminal and black lead to minus terminal of DC power supply.
(b) Fuse is blown.	Check and solve problem resulting in blown fuse and replace fuse with new fuse.
(c) No sound comes from speaker	Squelch is muted. Decrease squelch level. Tone or CTCSS/DCS squelch is active. Turn CTCSS or DCS squelch off. 3.5mm external speaker jack is occupied.
(d) Key and Dial do not function.	Key-lock function is activated. Cancel Key-lock function.

For additional help call our Tech Department at (888) 541-7223. We are here to help!

HOURS OF OPERATION: Monday - Friday: 8:00 AM - 5:00 PM PST

STONE CODES

CHANGING STONE CODES

Press **[F]** then **[P5]** to get to the desired tone type: "T", "T SQ", "DCS", or "SQ DCS". "T" and "DCS" are transmit side only. "T SQ" and "SQ DCS" are transmit and receive. Use the channel knob to change tone codes. Press **[P5]** to save. Unless needed, use codes with "SQ" in them. Our tone codes use the same chart and numbering system as listed in GMRS charts. To remove all tone codes on a channel, press **[F]** + **[P5]**, five times starting from the channel display. To toggle between numbered tone codes [EX: 22] and actual tone codes [EX: 141.3], press **[P1]** when in tone code menu.*

*Only radios produced after March 1, 2022 (signified by a waterproof power connector) are equipped with this feature.

*This is the number
you toggle to on
your radio!*

No.	DCS (Digital) Code
1	23
2	25
3	26
4	31
5	32
6	43
7	47
8	51
9	54
10	65
11	71
12	72
13	73
14	74
15	114
16	115
17	116
18	125
19	131
20	132
21	134
22	143
23	152
24	155
25	156
26	162

No.	DCS (Digital) Code
27	165
28	172
29	174
30	205
31	223
32	226
33	243
34	244
35	245
36	251
37	261
38	263
39	265
40	271
41	306
42	311
43	315
44	331
45	343
46	346
47	351
48	364
49	365
50	371
51	411
52	412

No.	DCS (Digital) Code
53	413
54	423
55	431
56	432
57	445
58	464
59	465
60	466
61	503
62	506
63	516
64	532
65	546
66	565
67	606
68	612
69	624
70	627
71	631
72	632
73	654
74	662
75	664
76	703
77	712
78	723

No.	DCS (Digital) Code
79	731
80	732
81	734
82	743
83	754
84	36
85	53
86	122
87	145
88	212
89	225
90	246
91	252
92	255
93	266
94	274
95	325
96	332
97	356
98	446
99	452
100	454
101	455
102	462
103	523
104	526

*Codes 84-104
may not be
supported by
other brand
GMRS radios*

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ABOUT OUR INDUSTRY LEADING GMRS RADIOS**

*This is the number
you toggle to on
your radio!*

No.	DCS (Digital) Code
1	23
2	25
3	26
4	31
5	32
6	43
7	47
8	51
9	54
10	65
11	71
12	72
13	73
14	74
15	114
16	115
17	116
18	125
19	131
20	132
21	134
22	143
23	152
24	155
25	156
26	162

No.	DCS (Digital) Code
27	165
28	172
29	174
30	205
31	223
32	226
33	243
34	244
35	245
36	251
37	261
38	263
39	265
40	271
41	306
42	311
43	315
44	331
45	343
46	346
47	351
48	364
49	365
50	371
51	411
52	412

No.	DCS (Digital) Code
53	413
54	423
55	431
56	432
57	445
58	464
59	465
60	466
61	503
62	506
63	516
64	532
65	546
66	565
67	606
68	612
69	624
70	627
71	631
72	632
73	654
74	662
75	664
76	703
77	712
78	723

No.	DCS (Digital) Code
79	731
80	732
81	734
82	743
83	754
84	36
85	53
86	122
87	145
88	212
89	225
90	246
91	252
92	255
93	266
94	274
95	325
96	332
97	356
98	446
99	452
100	454
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STANDARD GMRS CHANNELS

Channel	Frequency (MHz)
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125
15	462.5500
16	462.5750
17	462.6000
18	462.6250
19	462.6500
20	462.6750
21	462.7000
22	462.7250

GMRS REPEATER CHANNELS

Channel	Transmit Frequency (MHz)	Receive Frequency (MHz)
15RP	467.5500	462.5500
16RP	467.5750	462.5750
17RP	467.6000	462.6000
18RP	467.6250	462.6250
19RP	467.6500	462.6500
20RP	467.6750	462.6750
21RP	467.7000	462.7000
22RP	467.7250	462.7250

SPECIFICATIONS

GENERAL

Frequency	GMRS
Frequency stability	± 2.5 ppm
Operating temperature	-20°C ~ +60°C
Operating voltage	13.8V DC
Dimension	145x47x190mm

RECEIVER

	Wide Band	Narrow Band
Sensitivity	0.25 μ V	0.35 μ V
Intermodulation	≥ 65 dB	≥ 60 dB
Spurious rejection	≥ 70 dB	≥ 70 dB
Audio response	+1 ~ -3dB (0.3 ~ 3KHz)	+1 ~ -3dB (0.3 ~ 2.55KHz)
Audio distortion	<5%	<5%
FM hum and noise	≥ 45 dB	≥ 40 dB
Audio power output	> 2W@10%	> 2W@10%

SPECIFICATIONS

TRANSMITTER

	Wide Band	Narrow Band
Maximum Output power	45W	45W
Modulation	16K Φ F3E	11K Φ F3E
Adjacent Channel Power	≥ 70 dB	≥ 60 dB
FM modulation	≥ 40 dB	≥ 36 dB
Spurious Emission	≥ 60 dB	≥ 60 dB
Audio Response	+ 1 ~ -3dB(0.3 ~ 3KHz)	+ 1 ~ -3dB(0.3 ~ 2.55KHz)
Audio Distortion	$\leq 5\%$	$\leq 5\%$

NOTES



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